## AMENDMENT

**In The Claims**

1-9. (Canceled)

10. (Withdrawn) Apparatus for supplying refrigerant fluid to a cooling device, said apparatus comprising:

a first valve for controlling fluid flow to said cooling device; and

a control unit configured to generate a pulse modulated control signal for controlling said first valve,

wherein said pulse modulated signal is effective to control said first valve in a partly open condition.

11. (Withdrawn) The apparatus of claim 10, wherein said pulse modulated control signal is a pulse width modulated signal.

12. (Withdrawn) The apparatus of claim 11, wherein said first valve is configured to open to an extent responsive to a duty ratio of said pulse width modulated signal.

13. (Withdrawn) Apparatus for supplying refrigerant fluid to a cooling device, said apparatus comprising:

a first valve for controlling fluid flow to said cooling device; and a control unit configured to generate a control signal for controlling an extent of opening of said first valve,

wherein said control unit is configured, in response to a command to open said first valve, to generate said control signal to open said valve gradually over an interval of time,

whereby a pressure of said refrigerant gas supplied to said cooling device increases gradually.

14. (Withdrawn) The apparatus of claim 13, wherein said control signal is a pulse modulated signal.

15. (Withdrawn) Apparatus for supplying refrigerant fluid to a cooling device, said apparatus comprising:

an arrangement of valves for controlling fluid flow to and from said cooling device; and

a control unit configured to control said arrangement of valves in at least a first mode of operation for generating cooling in said cooling device, and a second mode of operation for generating heating in said cooling device;

said control device comprising a storage device for storing data defining a program sequence of at least one cycle of said first and second modes, and said control unit being configured to execute said program sequence.

16. (Withdrawn) The apparatus of claim 15, further comprising an input device for inputting a command to said control unit, wherein said control unit is responsive to said command to begin execution of said program sequence.

17. (Withdrawn) The apparatus of claim 16, wherein said input device comprises a foot-switch.

18. (Withdrawn) The apparatus of claim 15, wherein said storage device is configured to store a plurality of selectable program sequences.

19. (Withdrawn) Apparatus for supplying refrigerant fluid to a cooling device, said apparatus comprising:

an arrangement of valves for controlling a flow of said refrigerant fluid to and from said cooling device;

a flow rate sensor for sensing a flow rate of said refrigerant fluid and for generating a flow rate signal; and

a control unit responsive to said flow rate signal and configured to control said arrangement of valves.

20. (Withdrawn) The apparatus of claim 19, wherein said flow rate sensor is coupled to a low pressure side of said cooling device.

21. (Withdrawn) The apparatus of claim 19, wherein said control unit is configured to detect an occurrence of a blockage in said cooling device when said flow rate signal indicates an abnormally small flow rate of said refrigerant fluid.

22. (Withdrawn) The apparatus of claim 21, wherein said control unit is configured to perform an unblocking operation in response to detection of a blockage.

23. (Withdrawn) The apparatus of claim 22, wherein said unblocking operation is a backflush of said refrigerant fluid through said cooling device.

24. (Withdrawn) The apparatus of claim 19, wherein said control unit is configured to adjust a pressure of said refrigerant fluid supplied to said cooling device in response to the flow rate signal.

25. (Withdrawn) Apparatus for supplying a refrigerant fluid to a cooling device, the apparatus comprising:

a fluid supply conduit for receiving refrigerant fluid from a supply source;

first and second coupling conduits for communicating with said cooling device;

a first valve coupled between said fluid supply conduit and said first coupling conduit for selectively applying fluid pressure to said first coupling conduit;

a second valve coupled between said fluid supply conduit said second conduit for selectively applying fluid pressure to said second coupling conduit;

a third valve coupled between said first coupling conduit and a vent for selectively venting said first coupling conduit independently of said second coupling conduit;

a fourth valve coupled between said second coupling conduit and a vent for selectively venting said second coupling conduit independently of said first coupling conduit.

26. (Withdrawn) The apparatus of claim 25, further comprising a flow resistance coupled in series with said second valve between said fluid supply conduit and said second conduit.

27. (Withdrawn) The apparatus of claim 25, further comprising a flow rate sensor coupled in series with the fourth valve between said second coupling conduit and said vent.

28. (Withdrawn) The apparatus of claim 27, wherein said flow rate sensor is coupled between said fourth valve and said vent.

29. (Withdrawn) The apparatus of claim 25, wherein said apparatus is configured to operate in a cooling mode for supplying refrigerant fluid in a forward direction through said cooling device,

wherein said first valve and said fourth valve are open, and said second valve and said third valve are closed.

30. (Withdrawn) The apparatus of claim 25, wherein said apparatus is configured to operate in a heating mode in which a head of pressure is created directly or indirectly in each of said first and second supply conduits,

wherein at least one of said first and second valves is open, and said third valve and said fourth valve are closed.

31. (Withdrawn) The apparatus of claim 25, wherein said apparatus is configured to operate in a backflushing mode in which a head of pressure is backflushed from said second conduit through said cooling device to said first conduit,

wherein said first valve and said fourth valve are closed, and said third valve is open.

32. (Withdrawn) The apparatus of claim 25, wherein said first and second valves are normally closed valves, and said third and fourth valves are normally open valves.

33. (Canceled)

34. (Withdrawn) A method of operation of an apparatus for supplying fluid refrigerant to a cooling device, the method comprising:

generating a pulse modulated command signal indicative of a commanded extent of valve opening; and

applying said pulse modulated command signal to a first valve configured for controlling refrigerant fluid flow to said cooling device, to open said valve to said commanded extent.

35. (Withdrawn) A method of operation of an apparatus for supplying refrigerant fluid to a cooling device, the method comprising:

providing data representing a programmed sequence of operating modes of said apparatus, said operating modes including a cooling mode and a heating mode; and

executing said program sequence automatically by advancing from one mode to a next mode in a manner defined by the programmed sequence.

36. (Withdrawn) A method of operation of an apparatus for supplying fluid refrigerant to a cooling device, the method comprising:

sensing a flow rate of said refrigerant fluid; and

controlling, in response to said sensed flow rate, an arrangement of valves configured to control fluid flow to and from said cooling device.

37. (New) Apparatus for supplying refrigerant fluid to a cooling device, comprising:

an arrangement of valves; and

a control unit for controlling the arrangement of valves in a first mode of operation for generating cooling in the cooling device, and a second mode of operation for generating heating in the cooling device;

wherein the control unit comprises a storage device for storing data defining a program sequence of at least one cycle of the first and second modes of operation, wherein the control unit is configured to execute the program sequence.

38. (New) The apparatus of claim 37, further comprising an input device for inputting a command to the control unit to begin execution of the program sequence.

39. (New) The apparatus of claim 38, wherein the input device comprises a foot-switch.

40. (New) The apparatus of claim 37, wherein the storage device is configured to store a plurality of selectable program sequences.

41. (New) The apparatus of claim 37, wherein the arrangement of valves includes a third mode of operation for backflushing the cooling device.

42. (New) The apparatus of claim 41, wherein refrigerant fluid flows through the cooling device in a first direction in the first mode of operation, and the refrigerant fluid flows through the device in a second substantially opposite direction in the third mode of operation.

43. (New) The apparatus of claim 37, wherein the control unit is configured to generate a pulse modulated control signal for controlling a first valve, wherein the pulse modulated signal is effective to control the first valve in a partly open condition.

44. (New) The apparatus of claim 43, wherein the pulse modulated control signal is a pulse width modulated signal.

45. (New) The apparatus of claim 44, wherein the first valve is configured to open a predetermined amount that is proportionate to a duty ratio of the pulse width modulated signal.

46. (New) The apparatus of claim 43, wherein the control unit is configured, in response to a command to open the first valve, to generate the control signal to open the valve gradually over an interval of time.

47. (New) The apparatus of claim 37, further comprising a flow rate sensor for sensing a flow rate of refrigerant fluid in the cooling device, and for generating a flow rate signal in response to the detected flow rate.

48. (New) The apparatus of claim 47, wherein the flow rate sensor is coupled to a low pressure side of the cooling device.

49. (New) The apparatus of claim 47, wherein the control unit is configured to detect an occurrence of a blockage in the cooling device when the flow rate signal indicates a flow rate that is less than a predetermined threshold value.

50. (New) The apparatus of claim 49, wherein the control unit is configured to perform an unblocking operation in response to detection of a blockage.

51. (New) The apparatus of claim 50, wherein the unblocking operation comprises a backflushing of the refrigerant fluid through the cooling device.

52. (New) The apparatus of claim 47, wherein the control unit is configured to adjust a pressure of the refrigerant fluid supplied to the cooling device in response to the flow rate signal.

53. (New) The apparatus of claim 37, further comprising:

a fluid supply conduit for receiving refrigerant fluid from a supply source;

first and second coupling conduits for communicating with the cooling device;

a first valve coupled between the fluid supply conduit and the first coupling conduit for selectively applying fluid pressure to the first coupling conduit;

a second valve coupled between the fluid supply conduit the second conduit for selectively applying fluid pressure to the second coupling conduit;

a third valve coupled between the first coupling conduit and a vent for selectively venting the first coupling conduit independently of the second coupling conduit; and

a fourth valve coupled between the second coupling conduit and a vent for selectively venting the second coupling conduit independently of the first coupling conduit.

54. (New) The apparatus of claim 53, further comprising a flow resistance coupled in series with the second valve between the fluid supply conduit and the second conduit.

55. (New) The apparatus of claim 53, wherein the control unit is configured to operate in a cooling mode for supplying refrigerant fluid through the cooling device when the first and fourth valves are open, while the second and third valves are closed.

56. (New) The apparatus of claim 53, wherein the control unit is configured to operate in a heating mode in which a head of pressure is created in each of the first and second supply conduits, wherein, in the heating mode, at least one of the first and second valves is open, while the third and fourth valves are closed.